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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,373	03/23/2004	Young-Seok Lim	46078	1829
1609 7590 11/08/2007 ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P. 1300 19TH STREET, N.W. SUITE 600 WASHINGTON,, DC 20036			EXAMINER KING, SONIA J	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 11/08/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/806,373

Applicant(s)

LIM, YOUNG-SEOK

Examiner

Sonia J. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see Remarks/Arguments, filed August 17, 2007, with respect to the rejection(s) of claim(s) 1-19 under Eltawil et al in view of Harrison et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Eltawil et al in view of Dent and still in further view of Harrison.

### ***Drawings***

2. Figures 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eltawil et al US 7106784 B2 in view of Dent US Patent 6996380 B2.

5. With respect to claim 1, Eltawil discloses a plurality of fingers assigned on a path-by-path basis for discriminating among multipath signals received from the one or more Node-Bs (Figure 1); a combiner for selectively combining signals output from the fingers according to the determined transmit diversity method (Figure 2, Column 5 lines 36-39); a transmit diversity signal processor for demodulating the signals combined by the combiner on the basis of one transmit diversity method selected by the transmit diversity controller (Figure 2). Eltawil fails to teach a transmit diversity controller for determining a transmit diversity method through transmit diversity information received from the Node-Bs as in the claimed invention. However, Dent does teach this feature (Figure 9, Column 4 lines 52-54, Column 2 line 26-Column 3 line 43). Therefore, taking the combined teaching of Eltawil et al and Dent as a whole, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the transmit diversity controller as taught by Dent with the plurality of fingers as taught by Eltawil because doing so improves communication performance and efficiency (Dent, Column 1 lines 5-8).

6. Claims 2 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching above in view of Harrison US 7010055 B2.

With respect to claims 2 and 12, the combined teaching above fails to teach the transmit diversity method comprises one of an open loop transmit diversity method and a closed-loop transmit diversity method, as in the claimed invention. However, Harrison does teach this feature in Figure 3 (Column 6 lines 44 – 64, and line 65-Column 7 line 24). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the open loop and closed-loop diversity methods as taught by Harrison with the combined teaching of Eltawil and Dent, since it was well known in the art to apply open and closed loop diversity methods to communications systems.

Claims 3, 4, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching as applied to claim 2 above, and further in view of Hosur et al US 6977910 B1.

As to claim 3 the combined teaching above does not teach the open-loop transmit diversity method comprises one of a time-switched transmit diversity (TSTD) scheme and a space-time transmit diversity (STTD) scheme as in the claimed invention. However, Hosur et al does teach this feature. According to Hosur, the time-switched transmit diversity (TSTD) uses multiple transmit antennas to provide some diversity against fading, particularly at low Doppler rates when there are insufficient paths for the receiver. (Column 1 lines 64 – Column 2 line 3) In comparison space-time block-coding-based transmit diversity (STTD). [paragraph 0006] In comparison, in Figure 10B Hosur discloses the advantages of power control for space-time transmit diversity over time switched transmit diversity (Column 4 lines 11 and 12). The advantage being that

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space-time transmit diversity shows approximately 0.75 dB improvement with respect to TSTD. Therefore, taking the combined teaching and Hosur as a whole, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teaching to include the open-loop transmit diversity method as taught by Hosur so that both a time-switched transmit diversity scheme and a space-time transmit diversity scheme would be applied as claimed. Thus enabling the whole system to provide a reduced power consumption receiver with improved feedback reliability and a power control improvement.

As to claim 4 and 14, refer to the combined teaching above. Note also that Hosur teaches the closed-loop transmit diversity method comprises one of a first closed-loop transmit diversity mode for performing a compensation operation by taking into account a phase difference between signals received from antennas of each Node-B, and a second closed-loop transmit diversity mode for performing a compensation operation by taking into account the phase difference and a level difference between the signals received from the antennas of each Node-B in Figure 3.

As to claim 5 and 15, refer to the combined teaching above; note also that it is well known in the art that the combiner, in a rake receiver, selects and combines all signals output from fingers using transmit diversity as noted in Eltawil et al. Moreover, the combined teaching also discloses that only first antenna components of signals output from other fingers without using the transmit diversity. (Eltawil, Column 13 lines 40 and 41 and Figure 1)

As to claim 6 and 16, refer to the combined teaching above. Note also that the combined teaching does apply to an apparatus comprising: switches arranged between second antenna component outputs and an input terminal of the combiner so that second antenna component signals can be selectively input into the combiner.

(Harrison, Column 11 lines 5962, 64- Column 12 line 2)

As to claim 7, refer to the combined teaching above. Note also that Harrison teaches the switches are turned on/off by the transmit diversity controller or the transmit processor in Figure 3. (Column 6 lines 44-49)

As to claim 8 and 17, refer to the combined teaching above. Note also that according to the combined teaching it would have been obvious to one of ordinary skill in the art, that if the receiver is capable of operating without using transmit diversity and also has the ability to use more than one Node-B then likewise the transmit diversity controller can perform a control operation so that a transmit diversity method of at least one neighboring Node-B is applied to the transmit diversity signal processor where a serving Node-B performs a transmission operation without using transmit diversity. (see Eltawil, Figure 2; Harrison, Figure 3)

1. Claims 9, 10, 18 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teaching as applied to claim 3 above, and further in view of Park et al US 6865397 B2.
2. As to claim 9 and 18, the combined teaching above does not teach the transmit diversity controller performs a control operation so that a demodulation operation can be performed. However, Park et al does teach this aspect. According to Park, Figure 2 a

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base station supporting transmission diversity with a switch controller 213 generates a control signal for a switch 215 which performs the transmission diversity function. The switch 215, under the control of the switch controller 213, switches the transmission signal outputted from the baseband modulator 211 to a first antenna ANT1 or a second antenna ANT2. (Column 4 lines 38-49) Moreover with reference to Figure 3, a demodulation controller 314 controls despreading and decoding operations for the received signal. A baseband demodulator 316 despreads and decodes the received signal under the control of the demodulation controller 314. (Column 5 lines 17-21) The advantage being that a device and method for measuring power of signals output from at least two antennas, and equally controlling power of the signals being transmitted via the antennas is provided. (Column 2 lines 31-38)

3. Therefore, taking the combined teaching and Park as a whole, it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combined teaching to include the demodulator and demodulation controller as taught by Park so that a demodulation operation for signals from at least one neighboring Node-B can be performed without using transmit diversity where a serving Node-B performs a transmission operation using predetermined transmit diversity and a transmit diversity method of the neighboring Node-B is different from that of the serving Node-B. Thus a device and method for measuring power of signals output from at least two antennas and equally controlling power of the signals being transmitted via the antennas is provided.



4. As to claim 10 and 19, refer to the combined teaching above. Note also that claim 10 and the corresponding claim 19 are rendered obvious by the combined teaching.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonia J. King whose telephone number is 571-270-1307. The examiner can normally be reached on Mon-Fri 7:30am-5pm alt Fri's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER